RESIDENTIAL ROOFING

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NEW ROOF COVERINGS CAN NOT BE INSTALLED WITHOUT FIRST REMOVING THE EXISITING ROOF COVERING.

Inspections

- Starter roll and underlayment. Pictures are acceptable. Leave pictures on-site for final or email to: savageinspections@cityofsavage.com
- Final inspection when work is complete. A 24-hour notice is required for all inspections.

Underlayment

Always follow the manufacturer's installation requirements in addition to the following:

Ice Barriers

In areas where the average daily temperature in January is 25ºF or less, or where there is a possibility of ice forming along the eaves causing a backup of water, an ice barrier that consists of at least 2 layers of underlayment cemented together or a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment and extend from the eave's edge to a point at least 24" inside the exterior wall line. Exception: Detached accessory structures that contain no conditioned floor area.

Roof pitch of 2:12 to less than 4:12

Two layers of #15 felt or equivalent, applied with a minimum 19" strip of underlayment felt parallel with the starting at the eaves and fastened sufficiently to hold in place. Starting at the eave, apply 36" wide sheets of underlayment overlapping successive sheets 19" and fastened sufficiently to hold in place.

Roof pitch of 4:12 or greater

One layer of #15 felt or equivalent underlayment applied shingle fashion, parallel to and starting from the eave and lapped 2", fastened only as necessary to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be offset by 6'.

Ventilation

- Minimum attic/roof ventilation requirements are one square foot of ventilation for each 300 square feet of roof area, provided a 1-perm vapor retarder is installed on the warm side of the attic insulation.
- Fifty percent of the required ventilation must be in the upper portion of the roof and 50% located in the soffit portion of the roof. If the proper percentages cannot be met, then the ratio changes to one square foot of ventilation for each 150 square feet of roof area.

Valley Linings

Install in accordance with the manufacturer's installation instructions before applying shingles.

- Valley lining underlayment may consist of self-adhering polymer modified bitumen sheet complying with ASTM D 1970.
- Open valleys lined with exposed metal must be at least 24" wide (406 mm) and may consist of either 26G, zinc-coated G90 galvanized steel, 28G stainless steel, 16 oz. copper, or a zinc alloy.
  Closed valleys covered with shingles require a valley lining of 1-ply of smooth roll roofing complying with ASTM D 6380 or ASTM D 3909 and at least 36" wide.

Shingles

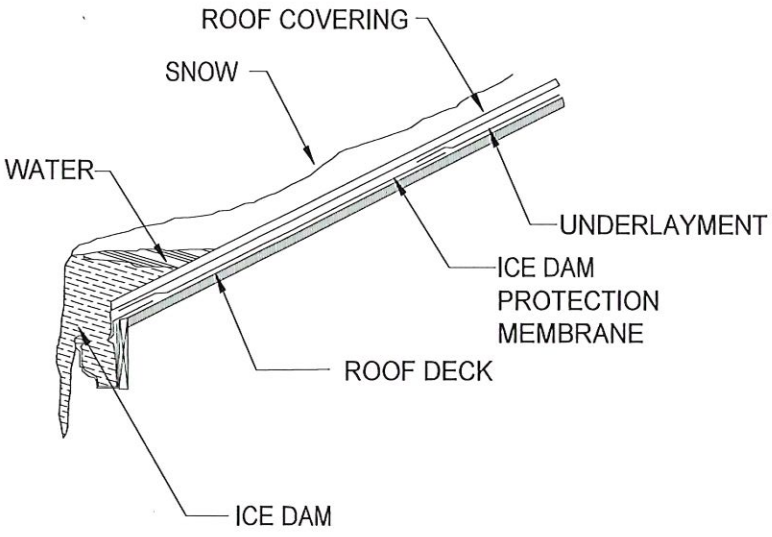
- Shingles must overhang all rakes and eaves per manufacturer's instructions included with the package of shingles.
- Fiberglass or asphalt shingles are not permitted on roofs with a pitch of less than 2:12. Less than 2:12 must be designed as a flat roof.
- Asphalt shingles must have the type and minimum number of fasteners required by the manufacturer. For normal applications, secure asphalt shingles to the roof with not less than 4 fasteners per strip shingle or 2 fasteners per individual shingle. If the roof slope exceeds 20 units vertical in 12 units horizontal (20:12), special methods of fastening are required.
- Shingles must be rated at 90 mph or must comply with ASTM D 3161.
- Wood shakes and shingles may not be used on roofs with less than a 3:12 pitch.

REFER TO THE DIAGRAM ON THE BACK FOR ICE & WATER SHIELD REQUIREMENTS

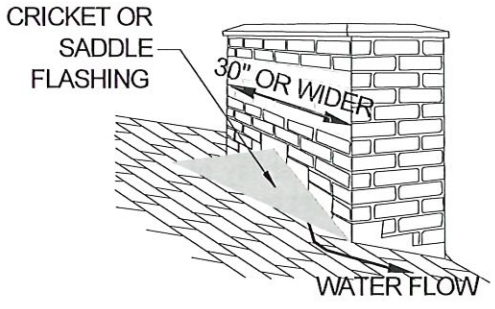
ICE AND WATER SHIELD REQUIREMENTS

APPLICATION GUIDE

Depth of over-hang	Distance on roof of required protection	# of 36" Rows	Distance on roof of required protection	# of 36" Rows	Distance on roof of required protection	# of 36" Rows	Distance on roof of required protection	# of 36" Rows	Distance on roof of required protection	# of 36" Rows	Distance on roof of required protection	# of 36" Rows
	4/12 pitch		**5/12 pitch**		**6/12 pitch**		**8/12 pitch**		**10/12 pitch**		**12/12 pitch**	
1'	3' 8"	1.2	3' 10"	1.3	3' 11"	1.3	4' 2"	1.4	4' 6"	1.5	4' 11"	1.6
2'	4' 8"	1.5	4' 11"	1.6	5'	1.7	5' 5"	1.8	5' 10"	1.9	6' 5"	2.1
3'	5' 10"	1.9	5' 11"	2.0	6' 1"	2.0	6' 7"	2.2	7' 2"	2.4	7' 10"	2.6
4'	6' 10"	2.3	7'	2.3	7' 3"	2.4	7' 10"	2.6	8' 5"	2.8	9' 2"	3.1
5'	7' 11"	2.6	8' 1"	2.7	8' 2"	2.7	8' 7"	2.9	9' 8"	3.3	10' 7"	3.5
6'	8' 11"	3.0	9' 2"	3.1	9' 6"	3.2	10' 2"	3.4	11' 1"	3.7	12'	4.0
7'	10'	3.3	10' 4"	3.4	10' 7"	3.5	11' 5"	3.8	12' 5"	4.1	13' 5"	4.5
8'	11' 1"	3.7	11' 5"	3.8	11' 8"	3.9	12' 7"	4.2	13' 7"	4.5	14' 10"	4.9
9'	12' 1"	4.0	12' 5"	4.1	12' 10"	4.3	12' 10"	4.6	13' 10"	5.0	16' 2"	5.4
10'	13' 1"	4.4	13' 6"	4.5	14'	4.6	15'	5.0	16' 4"	5.4	17' 17"	5.9
12'	15' 4"	5.1	15' 8"	5.2	16' 2"	5.4	17' 5"	5.8	18' 11"	6.3	20' 6"	6.8
14'	17' 5"	5.8	17' 11"	5.9	18' 5"	6.1	19' 10"	6.6	21' 5"	7.1	23' 4"	7.8
16'	19' 6"	6.5	20'	6.7	20' 8"	6.9	22' 2"	7.4	24' 1"	8.0	26' 2"	8.7



CHIMNEYS REQUIRE A SADDLE FLASHING (CRICKET) WHEN THEIR WIDTH IS 30" OR MORE. THE SADDLE FLASHING CAN BE METAL OR BE COVERED WITH ROOFING MATERIAL



BEST PRACTICES

ROOF FLASHING GUIDELINES

THE MAIN OBJECTIVE OF A ROOF IS TO PROTECT THE HOUSE FROM THE ELEMENTS, ESPECIALLY RAINFALL. WATER RESULTING FROM RAINFALL MUST BE SHED AWAY FROM WALLS, CHIMNEYS, OR OTHER STRUCTURES THAT CAN BE DAMAGED BY EXCESSIVE WATER COLLECTION.

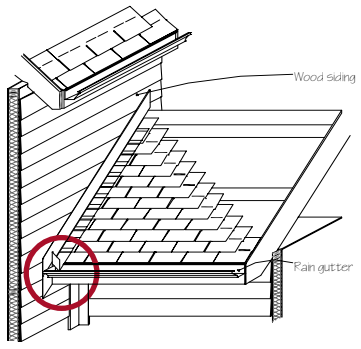
A sloped roof that meets a vertical wall (like the wall of a dormer window, or where a garage attaches to the two-story section of the house) requires special attention for water management. In ideal conditions, rain water that hits the siding will continue to flow down to the roof and then to the rain gutter. But no siding system is perfect, and inevitably some water gets behind the primary finish siding system. While the secondary drainage plane will keep water out of the wall, when it gets to the roof it must be given a way to get out of the wall and back onto the roof. If no water management strategies have been applied at the roof-to-wall transition, water can enter the building at this area, which can cause serious damage. Wet building materials can lead to mold growth, known to cause respiratory problems, and can lead to wood rot, which creates structural concerns.

The intersection between the roof and the wall of this dormer should have a good water management strategy.

There are two components for a good water management strategy at the critical roof-to-wall transition area. The first is to apply step flashing at the area where the roof connects to the wall, and to make sure that the secondary drainage plane behind the siding is integrated into the step flashing, so that any water that gets past the siding is diverted back out from behind the siding onto the roof. The second is where the roof ends at the gutter. To prevent water that is traveling down the step flashing from entering the wall system, a “kick-out” piece of flashing is needed to divert water away from the wall and into the gutter. This piece of flashing, which hangs over the edge of the roof, helps to divert water away from the adjacent wall or around any obstacles that the roof may butt into.

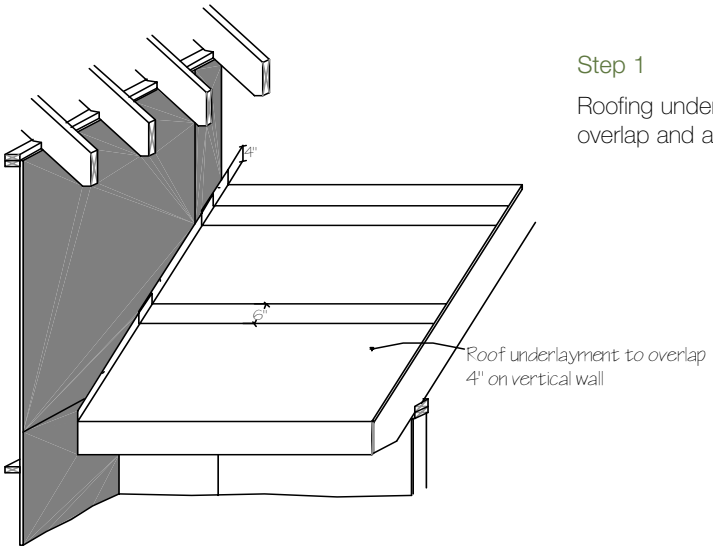
The five illustrated steps on page 6 show the preferred method to ensure that these flashing techniques have been done properly on a home with any sort of lap siding (wood, engineered wood products, cement board, etc). Following these steps will minimize the potential for water intrusion and contribute to a quality home. Planning for frequent inspections during construction to verify the proper sequence is being followed is also important to ensure proper implementation.

Per 2015 MN Residential Code:
Kick Out Flashing
Flashing used to divert water where the lower portion of a sloped roof stops within the plane of an intersecting wall cladding.



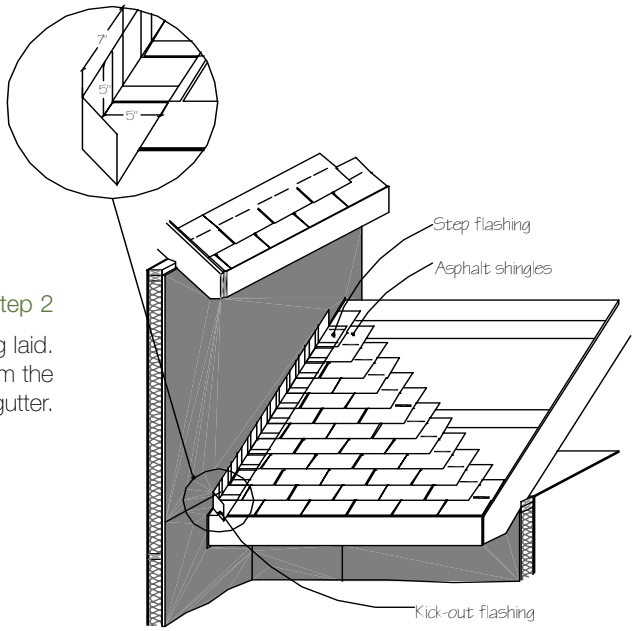
Kick-out flashing (seen in the red circle) diverts water away and the wall and into the gutter.

roof flashing guidelines



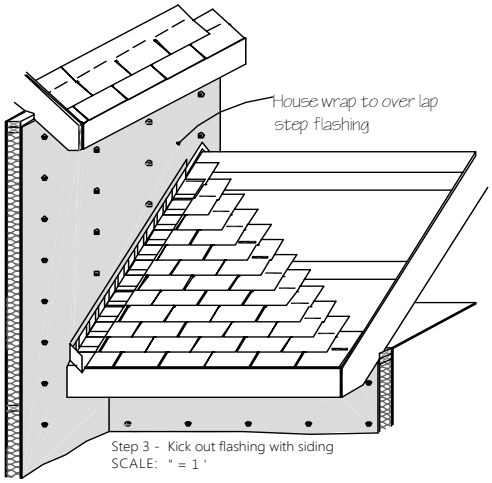
Step 1

Roofing underlayment is installed in shingle fashion with a 6-inch overlap and a 4-inch lap up the vertical wall.



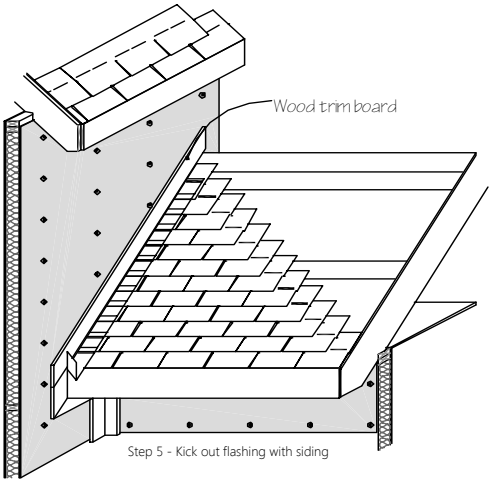
Step 2

The step flashing is installed as the roofing shingles are being laid. Kick-out flashing is installed so that water is diverted away from the adjacent wall and into the gutter.



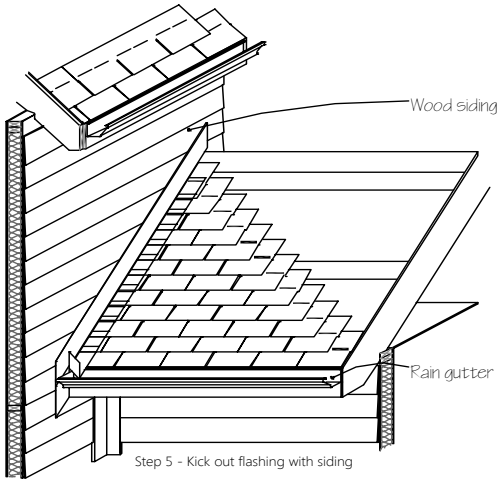
Step 3

The drainage material is installed on the vertical wall over the step flashing to ensure water drains down and away from the wall and onto the roof.



Step 4

Leave a 1 1/2-inch reveal (or gap) between the roof shingle to the siding materials. This is needed to prevent water on the roof from being wicked up into the siding material.



Step 5

Finally, a rain gutter is installed at the edge of the roof to complete the roofing drainage system.